

Appendix 3-1b: Annual Permit Compliance Monitoring Summary Report for EAA and C-139 Discharge Structures

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INTRODUCTION

The Everglades Regulatory Program Chapter 40E-63, Florida Administrative Code (F.A.C.) (EAA Rule) requires the South Florida Water Management District (District or SFWMD) to report on the status of the water quality monitoring performed in compliance with that rule, as stated in Appendix A3, page A3-1, paragraph 3 and Appendix B2, page B2-1, paragraph 3.

METHODS

WATER QUALITY AND HYDROLOGIC DATA

The water quality and hydrologic data evaluated in this appendix were retrieved from the District's DBHYDRO database. Before water quality data are entered into the database, the District follows strict quality assurance/quality control (QA/QC) procedures outlined in the District's Chemistry Laboratory Manual and Field Sampling Quality Manuals (SFWMD, 2004). The Laboratory Manual was developed in accordance with the National Laboratory Accreditation Conference (NELAC) requirements and the Field Manual in accordance with Florida Department of Environmental Protection Quality Assurance Rule (Chapter 62-160, F.A.C.). The quality manuals provide assurances that the water quality monitoring program is providing accurate data and that sufficient progress is being made toward achieving water quality standards.

The standards used to evaluate ratings' accuracy are consistent with the District's Standard Operating Procedures (SOP) for Flow Data Management in the District Hydrologic Database (SFWMD, 2003) and the U.S. Geological Survey (USGS) approach, as outlined by Novak (1985) (<http://pubs.er.usgs.gov/pubs/ofr/ofr85480>). Four accuracy classifications are adopted to assess a rating's accuracy. The rating is classified as "excellent" when about 95 of the predicted flow rates are within ± 5 percent of the measured discharges, "good" if they are within ± 10 percent, "fair" if they are within ± 15 , and "poor" when they are not within ± 15 percent.

SAMPLING SITES

The rule requires monitoring of flow and total phosphorus (TP) data for all structures discharging flow into and from the EAA and C-139 basins to determine flows and TP loads entering and leaving those basins.

The District typically collects water quality samples on the upstream side of a structure or at a nearby location representative of the quality of water flowing through a structure. Monitoring consists of flow-composited auto-sampler samples collected during periods of flow for each structure. These samples are accompanied by grab samples collected at regular intervals, every two, three or four weeks depending on the structure, which are collected regardless of flow status. Time composited auto-sampler samples may be collected at certain locations where it is not possible to collect flow composited samples.

Samples are collected by District personnel from the Water Quality Monitoring Division, or by sub-contractors contracted by the District to collect samples at locations specified by the District and using methods required by the District's Field Sampling Quality Manual. The samples are preserved in the field and transported to the District's laboratory for analysis.

DATA ANALYSIS

Table 1 provides sampling statistics for all the locations monitored during WY2005. Data are sorted by sampling station and sampling method, indicating values for grab samples, flow composited auto-sampler samples and time composited auto-sampler samples wherever applicable. For each location and sampling method, the number of samples, the sampling organization, and sample statistics are presented.

Table 1. EAA and C-139 water quality sample statistics.

Location	Basin	Sample Point	Type	Count	Maximum	Minimum	Mean	Median	Collecting Agency
S-352	EAA	S352	Grab	44	0.679	0.099	0.223	0.168	SFWMD
			Flow Composite	34	0.514	0.131	0.246	0.214	SFWMD
S-2 Complex	EAA	S2	Grab	19	0.441	0.075	0.196	0.189	SFWMD
			Flow Composite	3	0.171	0.056	0.101	0.077	SFWMD
		S351	Grab	33	0.228	0.054	0.150	0.152	SFWMD
			Flow Composite	30	0.295	0.087	0.168	0.171	SFWMD
S-3 Complex	EAA	S3	Grab	13	0.265	0.044	0.139	0.150	SFWMD
			Flow Composite	1	0.085	0.085	0.085	0.085	SFWMD
		S354	Grab	31	0.261	0.039	0.163	0.176	SFWMD
			Flow Composite	30	0.277	0.054	0.170	0.183	SFWMD
S-5A complex	EAA	S5A	Grab	53	0.822	0.072	0.183	0.154	SFWMD
			Flow Composite	41	0.450	0.068	0.167	0.144	SFWMD
S-6	EAA	S6	Grab	52	0.233	0.014	0.072	0.043	SFWMD
			Flow Composite	44	0.288	0.016	0.085	0.088	SFWMD
S-7	EAA	S7	Grab	51	0.199	0.010	0.025	0.014	Broward DERM
			Flow Composite	30	0.089	0.009	0.019	0.013	Broward DERM
S-150	EAA	S150	Grab	49	0.089	0.008	0.021	0.015	Broward DERM
			Flow Composite	4	0.018	0.011	0.013	0.012	Broward DERM
			Time Composite	43	0.079	0.008	0.022	0.015	Broward DERM

Location	Basin	Sample Point	Type	Count	Maximum	Minimum	Mean	Median	Collecting Agency
S-8	EAA	S8	Grab	53	0.097	0.010	0.028	0.022	SFWMD
			Flow Composite	23	0.037	0.010	0.020	0.017	SFWMD
G-200A	EAA	G200	Grab	16	0.122	0.018	0.063	0.051	SFWMD
			Flow Composite	2	0.079	0.058	0.069	0.069	SFWMD
G-600	EAA	G600	Grab	51	0.192	0.015	0.047	0.034	SFWMD
			Flow Composite	11	0.209	0.055	0.103	0.105	SFWMD
			Time Composite	29	0.061	0.018	0.032	0.028	SFWMD
G-328	EAA	G328	Grab	52	0.076	0.011	0.024	0.021	SFWMD
			Flow Composite	24	0.088	0.019	0.037	0.032	SFWMD
G-344A	EAA	G344A	Grab	43	0.089	0.019	0.046	0.045	SFWMD
			Flow Composite	21	0.086	0.023	0.049	0.049	SFWMD
G-344B	EAA	G344B	Grab	43	0.206	0.019	0.068	0.057	SFWMD
			Flow Composite	17	0.164	0.046	0.097	0.100	SFWMD
G-344C	EAA	G344C	Grab	51	0.314	0.036	0.091	0.069	SFWMD
			Flow Composite	19	0.264	0.043	0.114	0.085	SFWMD
G-344D	EAA	G344D	Grab	51	0.296	0.024	0.085	0.063	SFWMD
			Flow Composite	19	0.370	0.039	0.103	0.060	SFWMD
G-349B	EAA	G349B	Grab	2	0.050	0.029	0.040	0.040	SFWMD
			Flow Composite	2	0.053	0.050	0.052	0.052	SFWMD
G-350B	EAA	G350B	Grab	1	0.040	0.040	0.040	0.040	SFWMD
			Flow Composite	1	0.047	0.047	0.047	0.047	SFWMD

Location	Basin	Sample Point	Type	Count	Maximum	Minimum	Mean	Median	Collecting Agency
G-410	EAA	G410	Grab	51	0.197	0.015	0.043	0.031	EQI, FWEC
			Flow Composite	28	0.174	0.032	0.063	0.046	EQI, FWEC
G-357	EAA	G357	Grab	51	0.101	0.012	0.033	0.023	SFWMD
			Flow Composite	4	0.090	0.016	0.037	0.022	SFWMD
			Time Composite	14	0.081	0.017	0.036	0.032	SFWMD
G-404	EAA	G404	Grab	51	0.098	0.010	0.031	0.023	SFWMD
			Flow Composite	34	0.103	0.010	0.027	0.020	SFWMD
EBPS	EAA	EBEACH	Grab	37	0.632	0.100	0.340	0.306	FWEC
			Flow Composite	24	0.930	0.102	0.340	0.317	FWEC
ESPS	EAA	ESHORE2	Grab	33	0.280	0.045	0.148	0.144	FWEC
			Flow Composite	26	1.780	0.063	0.175	0.094	FWEC
G-342A	EAA	G342A	Grab	51	0.222	0.027	0.086	0.077	SFWMD
			Flow Composite	31	0.231	0.031	0.112	0.106	SFWMD
G-342B	EAA	G342B	Grab	51	0.297	0.046	0.115	0.091	SFWMD
			Flow Composite	31	0.251	0.056	0.123	0.108	SFWMD
G-342C	EAA	G342C	Grab	51	0.348	0.049	0.120	0.089	SFWMD
			Flow Composite	26	0.366	0.054	0.151	0.136	SFWMD
G-342D	EAA	G342D	Grab	50	0.483	0.043	0.119	0.086	SFWMD
			Flow Composite	28	0.449	0.058	0.127	0.102	SFWMD
G-204	EAA	G204	Grab	4	0.058	0.019	0.037	0.035	SFWMD
G-205	EAA	G205	Grab	4	0.070	0.032	0.045	0.040	SFWMD

Location	Basin	Sample Point	Type	Count	Maximum	Minimum	Mean	Median	Collecting Agency
G-206	EAA	G206	Grab	4	0.048	0.020	0.029	0.024	SFWMD
G-507	EAA	G507	Grab	5	0.052	0.023	0.033	0.027	SFWMD
			Time Composite	4	0.066	0.039	0.051	0.050	SFWMD
SSDDMC	EAA	SSDDMC	Grab	19	0.216	0.049	0.132	0.122	FWEC
			Time Composite	9	0.236	0.040	0.139	0.130	FWEC
G-370	EAA	G370	Grab	52	0.215	0.026	0.099	0.098	SFWMD
			Time Composite	51	0.199	0.047	0.104	0.099	SFWMD
G-372	EAA	G372	Grab	52	0.252	0.017	0.071	0.056	SFWMD
			Time Composite	51	0.219	0.019	0.076	0.060	SFWMD
G-376A	EAA	G376A	Grab	13	0.025	0.008	0.014	0.013	SFWMD
G-376D	EAA	G376D	Grab	13	0.020	0.008	0.013	0.012	SFWMD
G-379A	EAA	G379A	Grab	8	0.031	0.014	0.021	0.021	SFWMD
G-379D	EAA	G379D	Grab	44	0.055	0.008	0.025	0.021	SFWMD
			Flow Composite	2	0.012	0.012	0.012	0.012	SFWMD
G-381A	EAA	G381A	Grab	10	0.025	0.010	0.017	0.015	SFWMD
G-381C	EAA	G381C	Grab	10	0.024	0.008	0.015	0.015	SFWMD
G-136	C-139	G136	Grab	51	0.451	0.025	0.083	0.040	SFWMD
G-402A	C-139	G402A	Grab	10	0.056	0.013	0.021	0.015	EQI
			Flow Composite	9	0.060	0.016	0.026	0.022	EQI

Location	Basin	Sample Point	Type	Count	Maximum	Minimum	Mean	Median	Collecting Agency
G-402B	C-139	G402A	Grab	10	0.056	0.013	0.021	0.015	EQI
			Flow Composite	9	0.060	0.016	0.026	0.022	EQI
G-402C	C-139	G402C	Grab	10	0.031	0.012	0.015	0.013	EQI
			Flow Composite	5	0.019	0.011	0.016	0.016	EQI
G-402D	C-139	G402C	Grab	10	0.031	0.012	0.015	0.013	EQI
			Flow Composite	5	0.019	0.011	0.016	0.016	EQI
G-406	C-139	G406	Grab	12	0.537	0.043	0.184	0.149	SFWMD
			Flow Composite	8	0.539	0.049	0.275	0.270	SFWMD

EQI - Environmental Quality, Inc.

FWEC - TetraTech, Inc.